

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
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Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

FAULT CATEGORY

Landing Gear	General	Other
<input type="checkbox"/> Bending	<input type="checkbox"/> Bend	<input type="checkbox"/> Grain
<input type="checkbox"/> Centre Not Concentric to O/S	<input type="checkbox"/> BOM/Route	<input type="checkbox"/> Hardware
<input type="checkbox"/> Cracks	<input type="checkbox"/> Broken/Damaged	<input type="checkbox"/> Inspection Incomplete
<input type="checkbox"/> Crushed/Crimped.	<input type="checkbox"/> Burrs	<input type="checkbox"/> Instructions Incomplete/Unclear
<input type="checkbox"/> Cuffs	<input type="checkbox"/> Contamination	<input type="checkbox"/> Maintenance
<input type="checkbox"/> Heat Treat	<input type="checkbox"/> Countersink	<input type="checkbox"/> Mislabeled
<input type="checkbox"/> Inspection Strip in Tube	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Misread
<input type="checkbox"/> Ripples in Bend	<input type="checkbox"/> Drill Holes	<input type="checkbox"/> Offset
<input type="checkbox"/> Torque Waves in Extrusion	<input type="checkbox"/> Drawing	<input type="checkbox"/> Out of Calibration
<input type="checkbox"/> Turning Sequence	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Sequence
<input type="checkbox"/> Wave/Twist in Tube	<input type="checkbox"/> Folio	<input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized
		<input type="checkbox"/> Over/Under tolerance
		<input type="checkbox"/> Part Incorrect
		<input type="checkbox"/> Part Lost/Missing
		<input type="checkbox"/> Part Moved
		<input type="checkbox"/> Positioned Wrong
		<input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced
		<input type="checkbox"/> Temperature/Cure
		<input type="checkbox"/> Weld
		<input type="checkbox"/> Wrong Stock Pulled
		<input type="checkbox"/> Other

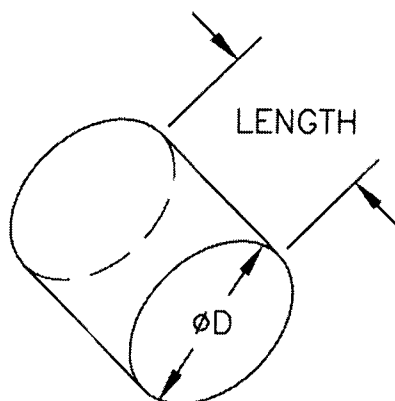


DESIGN JF	DRAWN BY [Signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29 [Signature]

SPECIFICATION CONTROL DRAWING



SHOP COPY
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
90168 MCT
12-09-17

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 1

Shipment No:1480779

Ship From: A. M. Castle & Co. (Canada) Inc. MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 26-SEP-2012	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 1480779-2	

Shipment Details	Final Destination Branch - MON
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Order No 2432199	Line No 1	Item No 42464.MO	Description 4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643				
Purchase Order No 17937		Part Number YOUR ITEM NUMBER: D6104-005		Ordered Qty 10.00 PCS		Invoice Qty 10.00 PCS	
Details							
Delivery No. 117999525	Mill TALLEY METALS, INC.	Heat Number G16471	Mech Id	PCS 10	Width (IN)	Length (IN)	Shipped Qty(LBS) 187.2907

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.	
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.	
Reviewed by Authorized Castle Metals Representative:	Date: Name:

AS
14
2-89 12/09/27

CERTIFICATE OF TESTS
CERT SERIAL# 000736577

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE



TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.
205 Talley Metals Lane
McBee, SC. 29101 Tel: (610) 208-2000 (800) 338-4592

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- THE VALUES AND OTHER TECHNICAL DATA REPRESENT THE RESULTS OF ANALYSES AND TESTS MADE ON SAMPLES COLLECTED FROM THE TOTAL LOT. ORIGINAL DATA RECORDS CAN BE TRACED BY REFERENCE TO THE CARPENTER ORDER NUMBER.
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08/03/10
CUSTOMER/BESTELLER/CLIENT

SELLER/VERKÄUFER/VENDEURPAGE 1 OF 2

A.M. CASTLE & CO

3400 N WOLF RD
FRANKLIN PARK IL 60131

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
54667-002	W70013	08/03/10	11935.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: G16471

PRODUCT DESCRIPTION: TYPE 17-4 SOLUTION ANNEALED ROUGH TURNED
PART NUMBER: IAC 42464

SPECIFICATION: CASTLE 3174-10 CAP OF COND. H900 REV 8 (04/03/08)
AMS 5643 REV R (02/ /08) (UNS S17400) (AISI 630)
ASTM-A564-04 (2009)
ASME-SA564 2007 EDITION-09B ADDENDA

SIZE 4.000000 IN. (101.60 MM) RD BAR

PRIMARY HEAT CHEMISTRY (WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (COM)	MN (XRF)	SI (XRF)	P (XRF)	S (COM)	CR (XRF)
0.02	0.87	0.30	0.026	0.026	15.35
NI (XRF)	MO (XRF)	CU (XRF)	N (FUS)	CB (XRF)	TA (XRF)
4.27	0.19	3.69	0.036	0.24	LT .01

CB+TA
0.25

THIS HEAT MELTED BY THE ARC/AOD PROCESSES
NO WELD REPAIR.

MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM AND ALPHA SOURCE CONTAMINATION.

HOT REDUCTION RATIO = 4:1

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HBW - 357 (MIDRADIUS)

MICROSTRUCTURE - FERRITE
MAGNETIC PARTICLE: FREQUENCY = 0 / SEVERITY = 0

SOLUTION ANNEALED - 1900 F, 1 HOUR - RAPID COOL

8/24/10
12/09/10

CONTINUED ON NEXT PAGE

This certification is made to the customer printed on this form. Carpenter neither makes, nor assumes responsibility for, any representation or certification to other parties.
Die vorliegende Zertifizierung ist nur für den in diesem Formular genannten Kunden gültig. Carpenter übernimmt gegenüber Dritten keinerlei Haftung für die ausgewiesenen Daten oder Zertifizierungen.
Ce certificat est uniquement valable pour le client dont le nom est imprimé sur ce formulaire. Carpenter n'assume pas de responsabilité pour une certification vis-à-vis d'une tierce personne.

CERTIFICATE OF TESTS
CERT SERIAL# 000736577

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE



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SELLER/VERKÄUFER/VENDEUR PAGE 2 OF 2

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HVL

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54667-002	W70013	08/03/10	11935.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE :

G16471

CAPABILITY

900 F (482 C), 01 HR

AIR COOL

YIELD STRENGTH, (0.20 %) KSI(MPA)	179.0 (1234)
TENSILE STRENGTH, KSI(MPA)	203.0 (1400)
ELONGATION IN 2.00", %	15.0
REDUCTION OF AREA, %	48.0
HARDNESS , HBW	403.0

(CONVERTED FROM TENSILE STRENGTH)

NO WELD REPAIR PERFORMED
MATERIAL PRODUCED ON THIS ORDER WAS MELTED AND MANUFACTURED IN THE U.S.A.
MATERIAL HAS BEEN MELTED IN USA OR QUALIFYING COUNTRY TO DFARS REQUIREMENTS 252.225-7014 WITH ALTERNATE 1 FOR QUALIFYING COUNTRY 225.872.1, SUPERSEDED BY DFARS REQUIREMENTS DFARS 252.225-7008 AND 252.225-7009.
WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS. CERTIFICATE OF TEST IS PREPARED IN ACCORDANCE WITH PARAGRAPH 3.1 OF EN 10204 (DIN50049)

STEPHANIE E. MCCULLUM
QUALITY ASSURANCE ENGINEER
CARPENTER TECHNOLOGY CORPORATION

CASTLE METALS - CLE

HEAT NUMBER G16471
MECHANICAL ID _____
ITEM CODE 42464
LOT NUMBER 651949
PO NUMBER 54667
RECEIPT DATE 8-6-10
SUPPLIER Talley
LOC _____
COMMENTS _____
APPROVED [Signature]

Handwritten notes and stamps:
DAS
8-10-10
2009/25

Handwritten signature: Stephanie McCullum